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Legally Human? 'Novel Beings' and English Law

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ABSTRACT

Novel beings- intelligent, conscious lifeforms sapient in the same way or greater than are human beings- are no longer the preserve of science fiction. Through technologies such as artificial general intelligence, synthetic genomics, gene printing, cognitive enhancement, advanced neuroscience, and more, they are becoming ever more likely and by some definitions may already be emerging. Consideration of the nature of intelligent, conscious novel beings such as those that may result from these technologies requires analysis of the concept of the 'reasonable creature in being' in English law, as well as of the right to life as founded in the European Convention on Human Rights and the attempts to endow human status on animals in recent years. Our exploration of these issues leads us to conclude that there is a strong case to recognize such 'novel' beings as entitled to the same fundamental rights to life, freedom from inhumane treatment, and liberty as we are.

Keywords: Posthuman; Human rights; Enhancement; Artificial Intelligence; Gene editing; Reasonable creature

I. INTRODUCTION

Previous papers in this issue have examined developments in biomedical science and technology which have in diverse ways posed, and continue to pose, challenges for bioethics and law. In this final paper, we explore developments that may soon create a dilemma for humankind unlike any previously considered outside the realms of science fiction. New lifeforms with capacity for consciousness at the same level as, or surpassing, ours, and perhaps meeting the criteria for philosophical personhood, may walk the earth alongside us. Such beings could be the result of human enhancement technologies such as nootropic drugs and neuro-technological implants creating what have been described as 'posthumans', descendants so different from us that they

may be seen as ‘novel beings’. Other wholly new lifeforms may range from artificially intelligent constructs enjoying true consciousness (a being that the media might term a sentient or thinking robot, but which we will term ‘sapient’ as discussed in the following section) to genetically designed and built biological creatures (synthetic biological constructs). If, or when, we (*Homo sapiens*) are no longer the only highly conscious entities on the planet, when we encounter these novel beings, how could or should the law respond? Will we need to rethink what it is to be human and confer that status on other beings? Does the law need to extend the same or similar protection which it grants *Homo sapiens* to other beings meeting some threshold for moral status? Should such entities be classified as human and so qualify for human rights and responsibilities; or should the law acknowledge that novel beings who may not be classed as human nonetheless share the qualities that entitle humans to human rights and the protection of the law?

In this paper we seek to initiate debate about these questions relating to novel beings and the law; we are aware that there is much further work to be done in particular once an inter-disciplinary study is attempted. The first named author is developing just such research with funding from the Wellcome Trust. Law too often lags well behind science as exemplified in the context of embryo research and fertility treatments when, as became apparent after the birth of Louise Brown, science had the capacity to create embryos *in vitro* but English law had no capacity to define the legal status of such embryos. Prior to the Human Fertilisation and Embryology Act 1990, human embryos *in vitro* existed in a legal vacuum.¹ If radically new beings are to be brought into existence, debate should begin now about their legal status. Moreover reflecting on the kinds of rights such beings might enjoy, and how some form of regulation might apply to our new companions, may assist us in determining whether or not the posthuman, the conscious AI, and the synthetic ‘human’ should be allowed to come into existence at all.

II. BACKGROUND

¹*Report of the Committee of Inquiry into Human Fertilisation and Embryology* (1984) Cm 9314 (The Warnock Report) at paras 11.16 – 11.17

The prospect of the emergence of novel beings has been addressed in philosophical and bioethical discourse; particularly in literature engaging with ‘human enhancement’ and posthumans. In relation to enhancement there is something of an ideological split present in the literature between two broad camps of commentators, namely those who support, and those who are opposed to, the widespread adoption of biotechnologies which will radically alter bodily function in some manner; groups whom we might term, respectively, as ‘pro-enhancement’ and ‘bio- conservative’. Much of the bioethical debate has focused on whether it is ‘right’ or ‘moral’ to enhance or otherwise create sentient or sapient beings other than those of the types we know today,² and this is, as with all questions of ethics, highly subjective in nature. This paper will not engage in attempting to answer this bioethical question, to declare ourselves to be pro-enhancement or bio-conservative. Rather it will focus on some of the implications that the basis of that question may have for the law- whatever that answer proves to be from a bioethical perspective. In a sense, it will not matter if these novel beings are legally permitted or prohibited in the United Kingdom. If they are created in a different jurisdiction, by accident, or simply without regard for regulations, they may come to exist anyway. As discussed briefly later, if the science is possible we must assume it will be developed somewhere. If so, we will have to engage with them, and determine our response.

Despite the relative wealth of analysis available in other disciplines, there seems to be little to be found in legal literature. There has been some consideration of the legal implications of human enhancement;³ as well as calls for further debate about regulation and enhancement, including a major conference in early 2016 aimed at contextualising enhancement technology in law.⁴ The conference, and those papers relating to human enhancement published to date suggesting methods of regulation of the scientific developments that may result in enhanced humans,⁵ focus

² See, for example, anthologies such as: J. Savulescu and N. Bostrom, eds., *Human Enhancement* (Oxford, UK: Oxford University Press, 2009); J. Savulescu, R. terMeulen, et al., *Enhancing Human Capacities* (Hoboken, NJ: Wiley-Blackwell, 2011).

³ For instance, C Cameron. Regulating human enhancement technologies: the role of the law and human dignity. *Journal of Law and Medicine*. (2010) 17(5):807-15; and DR Lawrence. To what extent is the use of human enhancements defended in international human rights legislation? *Medical Law International* (2013) 13(4), 254-278.

⁴ Human Enhancement and the Law: Regulating for the Future. (Oxford Law Faculty, 2016) Available at: <https://www.law.ox.ac.uk/research-and-subject-groups/neurolaw-project/human-enhancement-and-law-regulating-future>. Accessed Oct 03, 2017.

⁵ Eg. H Maslen, T Douglas, R Cohen Kadosh, N Levy, J Savulescu. The regulation of cognitive enhancement devices: extending the medical model. *Journal of Law and the Biosciences*. (2014) 1(1):68-93.

on the technologies which may result in enhancement;⁶ and how we might adapt existing law and policy to regulate the means which may bring about enhancement. This paper asks the broader question of how the law should respond to the radically enhanced human, the posthuman, and to 'her' potential companions the conscious AI and the synthetic biological 'human'.

As with posthumans, not much is yet written about the legal implications of conscious artificial intelligences- sometimes referred to as 'strong' AI or Artificial General Intelligence (AGI).⁷ There is an increasing body of work⁸ on the need to, and means by which we may, regulate the deployment and usage of 'expert systems'⁹ or 'applied' AI (sometimes known as 'weak' AI¹⁰ and nicely exemplified by self-driving cars). Such systems however are not making decisions in the manner of a human, using reasoning and intuition to consider cause and effect, but are instead applying their own type of first-order logical rules,¹¹ which might at a very simple level be summed up as 'if X, then Y'. Self-driving cars¹² are patently not conscious beings. The only works focusing on the jurisprudential questions potentially raised by 'strong' or 'general' AI seem to be doing so partially, tangentially, and in a limited fashion.¹³ Similarly there is little legal analysis of the nature of any being which (or should we say *who*) results from advances in synthetic biology or heritable germline gene editing; technologies that have the potential to allow the manufacture of organic life to new designs.

Before proceeding it is important to note that we prefer here the term 'sapient' rather than 'sentient' when referring broadly to the particular novel beings with which we are concerned. Sentience is

⁶ie. cognitively enhancing drugs and genetic modification, as elucidated below.

⁷ A Newell, HA Simon. Computer science as empirical inquiry: Symbols and search. *Communications of the ACM*. (1976) 19;3:113-26.

⁸ Including proposed EU legislation: European Parliament Committee on Legal Affairs. *Draft Report With Recommendations To The Commission On Civil Law Rules On Robotics* (2016) (2015/2103(INL)). Brussels. This proposed legislation has been affirmed and in February 2017 an EP resolution passed to ask the European Commission to propose a directive based upon them- European Parliament. *Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics* (2017) (2015/2103(INL)). Strasbourg.

⁹ C Cuddy. Expert systems: The technology of knowledge management and decision making for the 21st century. *Library Journal*. (2002) 127;16:82.

¹⁰ JR Searle. Minds, brains, and programs, *Behavioral and Brain Sciences* (1980) 3: 3. 417-57

¹¹ C Forgy. Rete: A Fast Algorithm for the Many Pattern/Many Object Pattern Match Problem *Artificial Intelligence* (1982) 19;1: 17-37.

¹² J Boeglin. The costs of self-driving cars: reconciling freedom and privacy with tort liability in autonomous vehicle regulation. *Yale JL & Tech*. (2015) 17:171; NA Greenblatt. Self-driving cars and the law. *IEEE Spectrum* (2016) 53(2):46-51.

¹³ T Pietrzykowski, VA Kurki (eds) *Legal Personhood-Animals, Artificial Intelligence and the Unborn*. (Springer; 2017)

simply the capacity to experience sensation, which would of course apply to creatures incapable of reasoned thought such as a mouse. Whilst sentience and the capacity to suffer is undoubtedly a factor in determining what creatures may warrant certain protections- per Bentham, “The question is not *Can they reason?* nor, *Can they talk?* but, *Can they suffer?*”¹⁴- sapience carries with it an implication of wisdom, reason, and insight, which is more akin to the life forms we envision in this paper.

III. MEETING THEPOTENTIAL NOVEL BEINGS

Before exploring the possible applications of the law to the three categories of entity mentioned above (the posthuman, artificial general intelligence, and synthetic biology constructs) it should be noted that these three particular types of beings are chosen for discussion in this paper because of their visibility and relative levels of development. The creation of the chosen novel beings is seen as scientifically possible as of 2018; and the notion that such beings might come to exist is within public consciousness- albeit for some people through the lens of science fiction. This is not to say that other technologies (both bio- and cyber- and others) may not also lead to the emergence of yet other novel conscious beings; and the following questions discussed could well be applicable to other forms of being. Before engaging more fully in legal analysis of the chosen trio, we say a little more about the nature of these three possible novel beings, in part to show how key differences between them may affect any analysis of their possible legal status.

A. *Posthumans*

Emerging biotechnologies are promising abilities beyond those of present-day mortal man.

Prosthetics, developing at a rapid rate to serve the needs of military amputees, can in some cases

¹⁴J. Bentham. *An Introduction to the Principles of Morals and Legislation* (1789) Chapter xvii. Available at <http://www.koeblergerhard.de/Fontes/BenthamJeremyMoralsandLegislation1789.pdf>. Last accessed 3/3/18)

now be grafted directly to a patient's own nerves.¹⁵ In time it may be feasible to endow one of these robotic limbs with strength beyond that which we possess naturally.¹⁶ Nootropic drugs, including cognitive enhancers, offer improved memory, increased metabolism, augmented thought-processing, and potentially an extended lifespan. Genetic manipulation could render recipients immune to diseases, specify capacities, or even grant the recipient attributes which could never have been inherited from the being's biological parents. The exact definition of human enhancement is widely disputed in bioethical literature,¹⁷ but it can broadly be agreed to as a collective term for a range of technologies and techniques which aim radically to increase, or improve, or grant new capacities to the existing human body including the brain. Posthumans will thus be so much more healthy, physically gifted and clever than we are that today's humans may appear to them as limited and uncouth as the Neanderthals do to us.

Bio-conservative commentators espouse a range of reasons why we might want to avoid enhancing ourselves and creating posthumans. Some hold that it would be freakish or unnatural to undergo procedures that might alter us from the so-called 'norm',¹⁸ or even that it would fly in the face of God by raising man to divine station¹⁹. More critics argue that we should fear the unknown consequences of our actions, and that we risk embarking on the proverbial 'slippery slope'.²⁰ Commentators warn of the corruption of 'human dignity' or the destruction of our identities as human individuals,²¹ and rail against the risks that they perceive of creating a genetic divide, an elite of highly enhanced beings and sub-class of unenhanced persons oppressed by the emerging 'posthumans'.²²

¹⁵ S Raspopovic, M Capogrosso, et al. Restoring natural sensory feedback in real-time bidirectional hand prostheses. *Science Translational Medicine*. (2014) 6:222

¹⁶ And indeed this is already in all relevant respects the case in elite paralympic sport, with 'blade' prosthetic limbs for sprinters.

¹⁷ As explored in DR Lawrence. To what extent is the use of human enhancements defended in international human rights legislation? *Medical Law International* (2013) 13(4), 254-278.

¹⁸ N Daniels. Normal Functioning and the Treatment-Enhancement Distinction. *Cambridge Quarterly of Healthcare Ethics*. (2000) 9(03):309-322.

¹⁹ H Flaumenhaft. The Career of Leon Kass *Journal of Contemporary Health Law and Policy* (2003) 2:1-2

²⁰ Y Eliezer 'Artificial Intelligence as a Positive and Negative Factor in Global Risk' In: N Bostrom and M Čirković, (eds), *Global catastrophic risks*. (Oxford University Press; 2008) 303

²¹ For example: L Kass. *Life, liberty, and the defense of dignity*. (Encounter Books; 2002).

²² B McKibben. *Enough: Staying Human In An Engineered Age*. (Times Books; 2003).

This posthuman is depicted as being something other than human. Nick Agar contends that '[r]adically enhanced beings are... significantly "better" than us in various ways, they are different from us- so different, in fact, that they do not deserve to be called human.'²³ Such a stance poses questions for the law: if a being does not deserve to be called human, presumably it should not be subject to or protected by the law in the same way as ordinary unenhanced humans are, and other sentient beings such as non-human animals are (generally)not?²⁴

Human rights, including fundamental rights to life²⁵, to protection against torture or inhuman or degrading treatment, to liberty- these rights apply, or are generally assumed to apply, only to humans (although we do provide certain protections to other animals and there have been attempts to extend human rights to certain species, as will be discussed later). If Agar and others of a similar view, such as Fukuyama in his oft-cited *Our Posthuman Future*²⁶, are correct in classing posthumans as no longer human, but a different species from *Homo sapiens* then does it follow that a sufficiently enhanced *Homo sapiens* would no longer be protected from homicide, torture, or deprivation of liberty? Nor presumably could they own chattels real or personal.²⁷ They might even, as non-human animals, be themselves owned by 'real' humans.

They might qualify for some protections against harm by virtue of (presumably) constituting a chordate animal,²⁸ but little else. Nor would they be subject to the same obligations and responsibilities as humans. They could not be punished (or at least not in the same way as a human) for a transgression, but could be humanely destroyed like a rabid dog if they posed a threat to others. Bio-conservatives argue that the danger posthumans pose to humans is such that that preferably we should prevent their creation; and that we must regard them as so different from

²³ N Agar. *Humanity's End: Why We Should Reject Radical Enhancement*. (MIT Press; 2010). 17

²⁴We think here of intelligent animals such as great apes and certain cephalopods. The Great Ape Project (as set out in P Cavalieri & P Singer. (Eds.) *The Great Ape Project: Equality Beyond Humanity*. (Macmillan; 1993) does not aim to grant great apes human rights *per se*, but rather to create a new category of Great Ape Rights. This contrasts the legal cases discussed in Section VI of this paper, which aim to apply human rights to their subjects.

²⁵ Council of Europe, *European Convention for the Protection of Human Rights and Fundamental Freedoms*, as amended by Protocols Nos. 11 and 14, 4 November 1950, ETS 5 Article 2

²⁶ F Fukuyama. *Our Posthuman Future*. (1st ed. Farrar, Straus and Giroux; 2002) 101-102.

²⁷ AA Berle. Property, Production and Revolution. *Columbia Law Review*. 1965 Jan 1;65(1):1-20.

²⁸ Animal Welfare Act 2006. s 1.

us as to deny them human rights if they come into existence. The same arguments are advanced in relation to 'strong' or 'general' AI and synthetic biological constructs.

We must consider, though, that the posthuman will be our descendant, our genetic relative. Despite her ancestry, can she have ceased to be human? Of the three types of novel being we discuss, the posthuman is the only one likely to emerge in transitional stages- wherein it is not clear if the being is a novel posthuman, or still 'normal' *Homo sapiens*. Technologies involved in enhancement are necessarily iterative. It may take several generations of their use and influence on a user's capacities before they could be considered sufficiently radically enhanced so that Agar might require that we prevent their very existence.

In the normal course of evolution and over countless generations, humans have altered and developed their capacities. Our unenhanced descendants will differ from us in various ways, and enjoy skills and physiological benefits that we do not. How, and where, can a line be drawn between our great-great-great-grandchildren who are simply humans, and the enhanced descendants who Agar *et al* argue may not be human but should instead qualify as novel beings?

*B. Artificial Intelligence and Consciousness*²⁹

It is a matter of contention whether artificial general intelligence (AGI) will ever come to pass, whether we will ever create(or cause to be created)a conscious non-biological being with cognitive abilities equal to or greater than those of *Homo sapiens*, in other words, an artificial being with the capacity for self awareness. There are a number of highly complex sub-fields within AI research working toward different elements of human-level cognitive function. For example, a true, conscious AGI would need to be able to perceive and understand information;³⁰ to learn;³¹ to

²⁹ The following subsection relates ideas explored more thoroughly in DR Lawrence. 'Robotic Intelligence: Philosophical and Ethical Challenges'. In: S Giordano (ed). *Bridging The Gap Between Science and Society: A Second Anthology on Scientific Freedom* (Manchester University Press, Forthcoming 2018)

³⁰ S Russell, P Norvig. *Artificial Intelligence A Modern Approach*. (2nd ed. Prentice Hall; 2003) 537–81, 863–98.

³¹ P Langley. The changing science of machine learning. *Machine Learning* (2011). 82;3:275–279.

process language;³² to plan ahead and anticipate (and so visualize itself in time, an important element of most philosophical conceptions of personhood);³³ to possess “knowledge representation”³⁴ or the ability to retain, parse, and apply the extreme number of discrete facts, truths, and logical paths that we take for granted, and be able to use this information to reason; to possess subjectivity; and much more. A number of projects are ongoing, attempting to develop and integrate one or more of these functions into ‘artificial brains’, using digitally modeled neural networks and other technologies. These include Cyc,³⁵ an ongoing 33 year effort to collect and incorporate a vast database of “common-sense” knowledge equivalent to that which would have been gathered by an adult human in a practical ontology, to enable self-directed reasoning independent of instructions and predetermined action. There is also the Google Brain,³⁶ a ‘deep learning’ project to use Google’s vast troves of data as a knowledge base and allow the AGI to begin to parse things for itself through cross-referencing and recognition. The Google Brain, when given access to image files and clips on *Youtube.com*, demonstrated that it has learned unprompted to recognise and identify human faces in motion, and showed a partiality to videos of cats.³⁷ A third project, the Blue Brain, has successfully modelled 37,000,000 synapses of a rat’s sensory cortex³⁸ in an attempt to understand the ‘circuitry’ with the aim of synthetic replication.

A sapient AGI may not qualify as being ‘alive’ in the same sense as human and non-human animals are biologically alive. It would probably not, for example, fulfil any of the more nuanced academically accepted physiological functions of life—namely, homeostasis, cellular organisation,

³² E Cambria, B White. Jumping NLP curves: A review of natural language processing research. *IEEE Computational Intelligence Magazine* (2014) 9;2:48–57.

³³ *Op cit* 31 at 375–459.

³⁴ *Op cit* 31 at 320–363.

³⁵ “A Knowledge modeling and machine reasoning environment capable of addressing the most challenging problems in industry, government, and academia”. ‘Cycorp: Home of Smarter Solutions’. (Cycorp) 2016. Available at: <http://www.cyc.com/>. Accessed 14 Oct, 2017;

‘The word: Common sense’. (*New Scientist*. 2006). Available at: <https://www.newscientist.com/article/mg19025471.700-the-word-common-sense/>. Accessed 14 Oct 2017. I thank John Harris for informing me of this fascinating endeavor.

³⁶ D Hernandez. ‘The Man Behind the Google Brain: Andrew Ng and the Quest for the New AI’ (*WIRED*. 2013). Available at: <http://www.wired.com/2013/05/neuro-artificial-intelligence/>. Accessed 14 Oct 2017.

³⁷ ‘Google’s Artificial Brain Learns to Find Cat Videos’. (*WIRED*. 2012) Available at: <http://www.wired.com/2012/06/google-x-neural-network>. Accessed 14 Oct 2017.

³⁸ H Markram, E Muller, S Ramaswamy, MW Reimann, M Abdellah, CA Sanchez, et al. Reconstruction and simulation of neocortical microcircuitry. *Cell* (2015) 163;2:456–492.

metabolism, growth, evolutionary adaptation, stimuli response, and reproduction.³⁹ In *Homo sapiens* and other non-human animals a lack of any of these characteristics would be incompatible with survival, either by failing to support the organism or by leaving it completely vulnerable to outside hazard such as predation or environmental exposure. An AGI, whether or not it is housed within a robotic body, would not require any of these processes⁴⁰ in order to continue to operate. So long as it is able to continue to perform the cognitive processes behind its consciousness, and so long as it is capable of self-awareness, sapience, and sentience (and as above therefore of suffering harm), it would still qualify as a being for our present purposes.

C. Synthetic biological construct

Our third type of novel being is likely to stem from a (conceptual) union of a range of developing technologies. Synthetic biology is the practice of "designing and constructing biological modules, biological systems, and biological machines for useful purposes"⁴¹ by "assembl[ing] components that are not natural (therefore synthetic) to generate chemical systems that support Darwinian evolution (therefore biological)".⁴² It includes the fields of artificial gene synthesis- effectively a long established⁴³ means of 'printing' existing DNA- and of synthetic genomics- in which entirely new DNA sequences are created.

Synthetic biology has already succeeded in generating novel (albeit not conscious) organisms such as Venter's JCVI-syn3.0,⁴⁴ a bacterium based on a pathogen found in humans but operated and grown entirely from man-made genetic 'instructions'. The *Human Genome Project—Write*,⁴⁵ a "sequel" to the original 1990–2003 project, aims to synthesise an entire human genetic sequence,

³⁹C McKay. What is life—and how do we search for it in other worlds? *PLoS Biology*(2004) 2(9): 302; E Trifonov.

Definition of life: Navigation through uncertainties. *Journal of Biomolecular Structure & Dynamics* (2012) ;29(4):647–50.

⁴⁰ Save, perhaps, reproduction in some form. G Studer, H Lipson. Spontaneous emergence of self-replicating structures in molecule automata. *Proceedings of the 10th Int. Conference on Artificial Life(ALIFE X)*.(2006) 227–33.

⁴¹T Nakano. *Molecular Communication*. (Cambridge University Press 2013). *passim*

⁴²SA Benner,AM Sismour. Synthetic biology. *Nature Reviews Genetics* (2005) 6(7):533–43.

⁴³ Having first been performed successfully in 1972. HG Khorana, KL Agarwal, H Büchi, et al. Total synthesis of the structural gene for an alanine transfer ribonucleic acid from yeast. *J. Mol. Biol.* (1972)72 (2): 209–217.

⁴⁴C Hutchison, R Chuang, V Noskov et al. Design and synthesis of a minimal bacterial genome. *Science*. (2016) 351(6280).

⁴⁵J Boeke, G Church, A Hessel et al. The Genome Project–Write. *Science*. (2016) 353:126-7.

with the stated intent of provoking discourse, stimulating the development of genetic technologies, and discovering the functions of the 98 percent of genes that remain a mystery. The signatories are careful to state in interviews⁴⁶ that their purpose is explicitly not the creation of a physical synthetic human embryo.

However, that possibility (that scientists can create a synthetic 'human' embryo) may come about once the project is complete; and where there is scientific possibility scientists in some part of the world may attempt to make that possibility a reality. An example can be found in the experiments on human embryonic germline modification in China to prevent β -thalassemia,⁴⁷ which preceded and precipitated the successful application by the Francis Crick Institute⁴⁸ to begin similar experimentation.

This possibility of a synthetic *Homo sapiens* embryo is particularly interesting both in the context of the legal status of such an embryo and with regard to the 'novel being' that might result if such embryos were allowed to develop. Were such synthetic embryos manufactured abroad and brought to the United Kingdom, what would be their status? The Human Fertilisation and Embryology Act 1990 unhelpfully defines a human embryo as 'a live *human* embryo'⁴⁹ thus begging the central question: is this embryo human?

It is at least clear that the synthetic embryo will not be a permitted embryo⁵⁰ and so could not in the United Kingdom be implanted in a woman to grow to maturity. What, though, of the nature of such a being allowed to develop in some other part of the world and 'born alive'? It (she) would combine elements of the posthuman and AGI. It would be an organic biological entity sharing the posthuman's closeness to and genetic relatedness with *Homo sapiens* but also sharing the AGI's

⁴⁶T Radford, N Davis. 'Scientists launch proposal to create synthetic human genome'. (*The Guardian*. 2016). Available at: <https://www.theguardian.com/science/2016/jun/02/scientists-launch-proposal-to-create-synthetic-human-genome-dna>. Accessed 14 Oct 2017.

⁴⁷P Liang, Y Xu, X Zhang et al. CRISPR/Cas9-mediated gene editing in human tripronuclear zygotes. *Protein & Cell*. (2015) 6(5):363-372. doi:10.1007/s13238-015-0153-5.

⁴⁸D Cressey, A Abbott, H Ledford . UK scientists apply for licence to edit genes in human embryos. *Nature*. (2015) Available at: <http://www.nature.com/news/uk-scientists-apply-for-licence-to-edit-genes-in-human-embryos-1.18394>. Accessed 14 Oct 2017.

⁴⁹Human Fertilisation and Embryology Act 1990S 1(1)

⁵⁰*ibid* S 3ZA

nature as a designed, 'programmed' entity 'born' of machines and computation. It is difficult to say whether such a being would qualify as animal or as machine, and consequently it is even harder to determine where an intelligent synthetic being might fall in terms of legal protections.

IV. MORAL STATUS

In bioethical debate the fundamental question raised, unsurprisingly, in relation to all three categories of potential novel being is to ask what moral status should be attributed to them. The moral status ascribed to a being, at its root, is an expression of the intrinsic value it is believed to possess. Very simplistically: the more value, the higher in moral status, and the more immoral it would be to harm that being. A being that can be harmed or wronged by actions against its interests is in possession of some degree of moral status;⁵¹ implying that this intrinsic value stems in some regard from the cognitive capacities of that being. A being at the top of the hierarchy of moral status today- a human- is described as possessing *full* moral status once it passes a certain threshold of these capacities. They can also be described as possessing personhood.⁵²

Charles Taylor put it thus:

A person is a being with a certain moral status, or a bearer of rights. But underlying the moral status, as its condition, are certain capacities. A person is a being who has a sense of self, has a notion of the future and the past, can hold values, make choices; in short, can adopt life-plans. At least, a person must be the kind of being who is in principle capable of all this, however damaged these capacities may be in practice.⁵³

⁵¹A Jaworska, J Tannenbaum. 'The Grounds of Moral Status', in *The Stanford Encyclopedia of Philosophy* (Fall 2017 Edition), ENZalta (ed.), <<https://plato.stanford.edu/archives/fall2017/entries/grounds-moral-status/>>. Accessed 14 Oct 2017

⁵²*ibid.*

⁵³C Taylor. The Concept of a Person. In C Taylor. *Philosophical Papers. Volume 1.*(Cambridge University Press, 1985) 97.

There are two important points here. The first is the description of persons as bearers of rights, and the second the specification of what capacities make a being warrant full moral status. These capacities are those we ascribe to conscious, sapient beings, such as the novel beings with which we are here concerned. If Taylor is correct- and the general consensus on the nature of personhood is to concur with him- then it may well be that our novel beings will possess these capacities and might warrant, therefore, full moral status equivalent to that enjoyed by us.⁵⁴

Arguments that such novel beings should be accorded the same moral status as *Homo sapiens* will trouble commentators who share Agar's concerns that posthumans pose a threat to *Homo sapiens*. Stephen Hawking has warned that AGI may spell the end of our species.⁵⁵ So if all or any of our three types of novel beings are conscious and aware and thus able to suffer harms,⁵⁶ could some lesser moral status be assigned to them- perhaps by analogy to the status assigned to certain non-human animals? Such animals are protected from certain sorts of harms, albeit as property, which would be particularly problematic in a sapient creature.⁵⁷ If a novel being does not fit within the parameters of personhood as applied to *Homo sapiens* might they be classified alongside creatures of equivalent moral status? If so a novel lifeform of equivalent moral status to a dog might warrant similar regard in the law as is paid to canines today. We will suggest later that such a compromise, at least in terms of legal status, makes little sense.

Arguments about moral status bring us to the central question in the paper: would, and should, all or any of our three novel beings be classed as legal persons, not just philosophical persons?⁵⁸

⁵⁴ It may even be possible to describe them, philosophically, as persons; though this is a topic requiring more space to discuss than is available here. See DR Lawrence. More Human than Human. *Cambridge Quarterly of Healthcare Ethics*. 2017 Jul;26(3):476-90.

⁵⁵R Cellan-Jones. 'Hawking: AI Could End Human Race'. (*BBC News* 2017) <http://www.bbc.co.uk/news/technology-30290540>. Accessed November 5 2017.

⁵⁶ Whilst Nagel's argument that we can never truly understand the reality of a consciousness we cannot experience (T Nagel. *Mortal Questions*. (Cambridge University Press 1991). Ch 12.) holds true, it seems sensible to act in favour of reducing harm in the world.

⁵⁷ e.g. the Animal Welfare Act 2006. It is a matter of some debate as to quite what form of property animals may constitute. We thank an anonymous reviewer for the point on property.

⁵⁸B Smith. Legal Personality. *Yale Law Journal*. (1928) 37:3; 283–299

V. NOVEL BEINGS, HUMAN RIGHTS, AND THE LAW

In an ideal world, well before any such novel beings are created, a system of legal regulation *inter alia* defining the status of such beings would be agreed and implemented globally. The capacity to locate or relocate controversial biotechnological developments to jurisdictions where no or minimal regulation applies means that the process of creation and/or manufacture may be well advanced before appropriate regulation is in place. We consider the potential legal status of our three novel beings by attempting to examine how the ECHR and English common law might approach such beings if no special regulation were put in place prior to their development and emergence. The key question is easy. Are these beings either to be classed as human or, if the ascription of human does not fit, to be treated in law as equivalent to human? Any answer to that 'easy' question is highly difficult.

A. *European Convention of Human Rights (ECHR)*

There is no definition of 'human' in the ECHR or English common law. Considering human rights law first, Article 2 of the European Convention on Human Rights (ECHR) holds that "[e]veryone's right to life shall be protected by law." Article 3 prohibits torture, inhumane or degrading treatment and Article 5 grants 'everyone' the right to liberty. In this paper we confine ourselves to these three very basic rights and do not address the complexity of applying other Articles of the ECHR to novel beings. These three rights would if applied to our novel beings prevent their destruction, safeguard them from brutality and, in allowing them liberty, prevent ownership of such beings.

Who or what counts as everyone? A guide to the interpretation of Article 2 states that:

Life here means human life, neither the right to life of animals nor the existence of legal persons is covered by the concept. Animals are not persons and hence not included in the

concept of everyone (*toute personne*) and are therefore not protected by the Convention at all.⁵⁹

The guidance, albeit published by the Council of Europe, does not preclude a different interpretation of the scope of the Convention were a case ever to reach the European Court of Human Rights. It has the virtue of simplicity, resting on the assumption that we all know what humans are. We are humans of the species *-Homo sapiens*, and we are the only creatures that may claim to the fundamental rights embodied in the ECHR. The Convention was drafted over seven decades ago. The notion of entities such as posthumans, AGI, and synthetic biological constructs was barely formed in any minds, and so the restriction of Article 2 and the Convention as a whole to our species cannot thus be taken as a given. However before considering other, better, ways of approaching who or what can be the bearer of Convention rights, we should first apply the simplistic approach above (to who counts as everyone) to who counts as human.⁶⁰

We begin with posthumans, our radically enhanced descendants against whom bio-conservatives warn us to beware, and to be cautious of granting such beings rights lest they seek to crush unenhanced humans. Fukuyama, as discussed, suggests that such beings have ceased to be humans.⁶¹ Taking the simple view of what constitutes human for the purpose of gaining human rights we suggest that it is hard to argue that posthuman descendants are not human. A posthuman (for our purposes) is an enhanced *Homo sapiens* or a descendant thereof. It would, therefore, possess *Homo sapiens* DNA. There may across the generations have been deliberate manipulation and alteration of that DNA in pursuit of enhancement, but such is the case now with mitochondrial replacement technology and other gene therapies and there is no serious argument that a child born as a result of these is not human.

⁵⁹D Korff. *The right to life. A guide to the implementation of Article 2 of the European Convention on Human Rights* Council of Europe – Human Rights Handbook No. 8 (Strasbourg, Council of Europe, 2006);8. Available at: <https://rm.coe.int/168007ff4e>

⁶⁰*ibid* :10

⁶¹*op cit.* 27

Let us imagine that in a number of generations, the first named author has a multiple-times great grandchild- Zara. Zara, her parents, grandparents and other direct ancestors are naturally born via the usual means of reproduction. Zara may well enjoy capacities absent in her ancestor. Whatever differences or increases in capacity there are between Zara and her ancestor would be the natural product of education, developments in technology, genetic drift and marginal evolution.⁶² Zara is undoubtedly human and as such would enjoy the protection of rights such as those bestowed by the ECHR. The author also has descended from him a deliberately enhanced posthuman: Ava, whose enhanced abilities were chosen and cultivated through biotechnology. Both women carry echoes of the author's decidedly human genome. Both are conscious, intelligent persons. Both have cognitive and physical capacities beyond the author's, having undergone similar changes in different manners. It would be nonsense to say that while Zara is human; Ava is not, even if Ava has a superior range of enhanced capacities when compared to her cousin

Our other novel beings are much less likely to fall within the scope of the Convention as presently understood by the Council of Europe. AGI, as a machine and not any sort of biological entity, fails the test. Synthetic biological constructs may of course be built from human DNA or in the image of a human genome but seem unlikely to fall within the simplistic approach in the Guide to the ECHR.

B. Reasonable Creature in Being

What sorts of creatures qualify for the protection of the common law? The approach that simply says human rights are for humans and that that necessarily means *Homo sapiens* fails to ask what it is that makes us human and thus entitled to protection which non-human animal and artificial constructs do not enjoy. Exploring this question further requires that we delve back in legal history. The right to life enjoyed by humans long predates the ECHR. Under the common law, laws on homicide evolving many *centuries* ago protected the right to life. Writs of trespass to the person

⁶² It is entirely possible for Darwinian evolution to occur over small numbers of generations in humans, contrary to popular belief. See: S Byars, D Ewbank, D Govindaraju, and S Stearns. Natural selection in a contemporary human population. *Proceedings of the National Academy of Sciences*(2009) 107: 1787-1792

protected bodily integrity and liberty and the writ of habeas corpus has been described as lying ‘at the heart of our liberty’.⁶³

Our assumptions about what beings count as human in the law have developed organically over a similar period- from a time well before any of our novel beings could have been imagined. Sir Edward Coke defined the crime of murder as follows:

Murder is when a man of sound memory, and of the age of discretion unlawfully kills ... any reasonable creature in *rerum natura* [today rendered *anglice* as “in being”] under the King’s peace with intent to kill or cause grievous bodily harm.⁶⁴

Coke’s definition of murder is well known to law students across the English speaking world but just what is a ‘reasonable creature in being’? The meaning of the phrase has been principally debated in the context of abortion⁶⁵ and in the litigation relating to the lawfulness of the surgical separation of conjoined twins born in Manchester, surgery that would inevitably lead to the death of the weaker twin.⁶⁶ Waller, in his paper ‘Any Reasonable Creature in Being’,⁶⁷ although also principally focused on abortion, offers some more general discussion of what may be meant by reasonable creature. He states that “traditionally ‘reasonable’ has meant human - no more and no less”, but goes on to say that Coke uses the term “in its older sense of having the faculty of reason, that is, that quality which distinguishes human beings in general from other living beings in general”.⁶⁸ Waller reminds the reader that Coke made it clear that the term embraced “[M]an, woman, child, subject born, or alien persons outlawed or otherwise attainted of treason, felony or *praemunire*, Christian, Jew, heathen, Turk or other infidel”.⁶⁹ Coke makes it clear that all people, not just the privileged elite enjoyed at least the right to life, even if they had no right to vote or as

⁶³ *Figueroa v Walsh* 2008 WL 1945350

⁶⁴ Sir E. Coke, *The Third Part Of The Institutes Of The Laws Of England*. (Printed for the Societie of Stationers; 1628). Pt III, Ch 7: 47.

⁶⁵ J Dellapenna. *Dispelling the Myths of Abortion History* (Carolina Academic Press 2006)

⁶⁶ *Re A (Minors)* (conjoined twins: surgical separation) [2001] Fam 174.

⁶⁷ L Waller. Any Reasonable Creature in Being (1987) 13 *Monash U.L.Rev* 37.

⁶⁸ *Ibid* at 55.

⁶⁹ *Ibid* at 38.

married women no right to own property. At the end of his paper Waller touches briefly on the exception made for 'monsters' who may be denied that right.

How might Coke's definition apply to the three novel beings? Prima facie, it would seem clear that the posthuman who is descended from humans today, but with enhanced capacities, falls within the definition of reasonable creature. The posthuman enjoys both human lineage and the faculty of reason, the latter presumably to a greater degree than today's human. So the only ground on which the posthuman, Ava, might be denied the right to life (a right that as we have seen some commentators fear will spell the end of *Homo sapiens*) is if they may be classed as monsters.

AGI in contrast is not a product of human lineage. Nor has it any biological similarity to being 'human'. It is made, not begotten. A claim to Coke's protection would have to lie on placing the emphasis not on being human, but being a non-human entity with the faculty of reason and we deal with such a claim in the next section. Synthetic Biological constructs may come closer than AGI to being seen as 'human' if built of human biological elements but again may face the question of whether non-human can claim human rights

C. Posthumans and Other Monsters

Returning to the posthuman, might beings superior to us in the manner so feared by some commentators be seen as monsters akin to the alien children in *The Midwich Cuckoos*?⁷⁰

Blackstone wrote of a monster that although born of a woman it "hath not the shape of mankind" and was beyond the pale of the law's protection.⁷¹ Though we now live in more enlightened times and no longer tend to speak in such terms, as recently as 1957 Glanville Williams, while noting the difficulty of defining the term monster, suggested that "a creature that is clearly a monster in the old-fashioned sense could lawfully be put to a merciful death."⁷² He notes that historically monsters

⁷⁰Wyndham J. *The Midwich Cuckoos* (Michael Joseph Publishing 1957)

⁷¹W Blackstone. *Commentaries on the Laws of England Oxford*, (Clarendon 1765). II: 246; and see *op cit* 67. Waller (n X) 55.

⁷²G Williams. *The Sanctity of Life and the Criminal Law*. (Faber and Faber 1957) 33.

were often considered to be the result of a woman lying with an non-human animal and though he dismisses such a myth as error he does rely on other historic understandings of monster; in particular that a monster is categorically not a human.

In addressing the lawfulness of separation of the Manchester conjoined twins when surgery would inevitably result in the death of the weaker twin in *Re A (Minors) (conjoined twins: surgical separation)*⁷³ the Court of Appeal addressed both the questions of whether that weaker twin Mary was a creature in being and if she was a 'monster'. Mary's lungs and heart were insufficient to support her life independently and only the common artery shared with her sister kept her alive. She was said to have a very poorly developed "primitive" brain.⁷⁴ Brooke LJ suggests at one point in his judgment that being 'alive' might be the only pertinent requirement to the case:

Mary's life is a human life that falls to be protected by the law of murder. Although she has for all practical purposes a useless brain, a useless heart and useless lungs, she is alive.⁷⁵

Brooke LJ goes on to add that conjoined twins do not constitute a 'monster' per se,⁷⁶ nor was Mary a monstrous birth, and in so finding he was joined by his two fellow Lord Justices. Ward LJ deprecated "any idea of 'monstrous birth'"⁷⁷. But Brooke LJ left open the question of whether there might still be the extreme case where a creature born of human parentage would not be a reasonable creature in being.

Advances in medical treatment of deformed neonates suggest that the criminal law's protection should be as wide as possible and a conclusion that a creature in being was not

⁷³[2001] Fam 147: discussed in M Brazier and S Ost *Medicine and Bioethics in the Theatre of the Criminal Process* OUP, 2013) 163-178.

⁷⁴ Re A at 161.

⁷⁵*ibid* at 212.

⁷⁶*ibid* at 213

⁷⁷*ibid* at 181

reasonable would be confined only to the most extreme cases, of which this is not an example.⁷⁸

In this view he relies, again, on Williams; who is clear that the historic legal understanding is that “a child is not accounted a monster merely because it has the wrong number of fingers or joints, or is crooked or hump-backed or has twisted limbs...”⁷⁹.

The key issue for this paper becomes; if the notion of monstrosity survives, might the enhanced posthuman be classed as a monstrosity? She will share the appearance of mankind and have reason in abundance. Historical definitions of the monster seems to assume first radical physical impairment and second largely absent cognitive function married at least in the times past to some sort of non-human parentage. Given the closeness of a posthuman to *Homo sapiens*, at the least on a genetic level, it is difficult to imagine them constituting a monster⁸⁰- assuming they are not themselves impaired.

Should AGI and synthetic biological constructs be considered to fall within Coke’s category of ‘reasonable creature’, the question on monstrosity may be more pertinent. An AGI is an entity with no ready connection with human biology, and a potentially very different capacity to suffer harm in the sense of pain and emotional distress. It may be made to have the appearance of mankind or may be wholly alien in form, even formless and existing only electronically. Built with a genome following the human pattern and possibly human-style body parts, the synthetic biological construct may be closer to the posthuman Ava and thus her human relative Zara than any AGI. But it (she) is still manufactured and designed, and in the public imagination may appear as truly Frankenstein’s baby. The possible use of artificial parts, human and non-human animal material resonates with

⁷⁸*ibid* at 213.

⁷⁹*Ibid*.

⁸⁰This idea also resonates with the work of Margrit Shildrick, who argues against the monstrous as being abnormal and more a condition of attractiveness (M Shildrick. *Embodying the Monster: Encounters with the Vulnerable Self*. (Sage; 2001)); and more particularly with that of Alex Sharpe, who places the monster as the ‘outsider par excellence’ (A Sharpe. *Foucault’s Monsters and the Challenge of Law*. (Routledge; 2010)). Thanks to an anonymous reviewer for drawing this to our attention.

historical perceptions of the monster and it remains to be seen quite how far genetic relatedness to us will count either in courts of law or in the court of public opinion.

D. Born Alive

One further matter should be briefly considered before addressing non-human claims to human rights. In English law and under the ECHR we note the requirement to be “born alive” in order to come within Article 2⁸¹ and thus a right to life and to gain the protection of the law of homicide. The human foetus may be partially protected by laws regulating abortion but does not become a legal person until born alive. In the biological sense the AGI and synthetic biological construct are not born at all. No mother gestates and gives birth.⁸² However if ectogenesis becomes feasible,⁸³ *Homo sapiens* foetuses may also not be born in the sense we now regard birth. We should nonetheless consider what general guidance the test of born alive may offer. In *Rance v Mid-Downs Health Authority*,⁸⁴ the question arose whether the abortion of a foetus that may have been capable of being ‘born alive’ would be unlawful given a potentially negligent failure to detect a foetal deformity in ultrasound scans when the mother was more than 27 weeks pregnant. Brooke J (as he then was) established that a creature in being is only considered to be ‘born alive’ if:

[A]fter birth, it exists as a live child, that is to say breathing and living by reason of its breathing through its own lungs alone, without deriving any of its living or power of living by or thro/ugh any connection with its mother.

Correspondingly, the reasonable creature capable of being the subject of rights could only be so if it was capable of what we might call a ‘standalone’ existence. This is not to say it does not require support to survive, but that it does not require this support from any one specific party (i.e. a

⁸¹ *Vo v France* ECHR 2004-VIII

⁸² It is conceivable that a synthetic embryo could be implanted in a surrogate mother, subject to compatibility and safety concerns. Such a procedure would however currently be contrary to the Human Fertilisation and Embryology Act 1990 in the UK.

⁸³ As appears likely. EA Partridge et al. An Extra-Uterine System To Physiologically Support The Extreme Premature Lamb. *Nature Communications* 8 (2017): 15112

⁸⁴ *Rance v Mid-Downs Health Authority* [(1991) 1 All ER 801

biological mother). As alluded to earlier, it may be difficult to say if an AGI is born alive in a sense we may recognise by biological standards; and as such it may not need to be subject to a 'right to life', *per se*, but perhaps this could be thought of as a right not to be terminated. The following will retain the former terminology of 'life' for convenience.

VI. NON-HUMAN 'HUMAN' RIGHTS

In prior sections of this paper, we have argued that posthumans are most likely to be classed as reasonable creatures in being, given that they are of direct human lineage and manifestly enjoy the faculty of reason. AGI and synthetic biological constructs are much less likely to be so classified as long as the traditional notion that reasonable creature in being equals human being in the popular understanding holds sway. Our final substantive question is to ask whether it might be possible to conclude that a being with the same capacity for reason as humans, even if not human, should count as a reasonable creature in being; and whether a being that meets the criteria for moral personhood has a claim to legal personhood.

A. *Non-human Animals and Novel Beings*

In Argentina and the USA legal challenges⁸⁵ have been brought seeking legal personhood⁸⁶ for great apes. In 2015, an Argentine court granted an orang-utan, Sandra, specific "non-human person rights" to life, to freedom, and to protection from harm, in order to have her released from captivity and moved to a sanctuary.⁸⁷ This was achieved by a writ of *amparo*, an instrument used in

⁸⁵ Such as *The Nonhuman Rights Project, Inc., On Behalf Of Tommy, V Patrick C. Lavery*. 124 A.D, 3d 148 (2014); *Matter Of Nonhuman Rights Project, Inc. V. Stanley*. 49 Misc.3d.746 (2015); McKinley J. Judge Orders Stony Brook University to Defend Its Custody of 2 Chimps. *Nytimes.com*. 2015. Available at: <http://www.nytimes.com/2015/04/22/nyregion/judge-orders-hearing-for-2-chimps-said-to-be-unlawfully-detained.html>. Accessed July 17, 2017.

⁸⁶ We are also starting to see claims for other forms of rights for animals. One highly publicised recent case, *Naruto, et al. v. Slater, et al.*, no. 16-15469 (9th Cir. 12 July 2017), aimed to grant copyright to a wild macaque that had taken a photograph of itself with a wildlife photographer's equipment. The case was dismissed and no serious analysis of the basis of copyright took place, but it illustrates an appetite to consider these questions.

⁸⁷ It has proven difficult to find an official repository of record for this case, hindered further by the authors' lack of Spanish fluency. Consequently no official citation can be provided beyond a case reference ("ASOCIACION DE FUNCIONARIOS Y ABOGADOS POR LOS DERECHOS DE LOS ANIMALES Y OTROS CONTRA GCBA SOBRE AMPARO" EXPTE. A2174-2015/0) and English news articles such as: 'Orangutan granted controlled freedom by

the Spanish-speaking world for the protection of individual rights.⁸⁸ In so doing, Justice Liberatori explicitly declared Sandra a non-human person.

Similar claims in the USA have met with less success but are useful in an examination of the possible status of the second and third categories of novel beings AGI and synthetic biological constructs. We discuss here just two judgments and acknowledge that we do no more than scratch the surface of complex cases. In both cases pressure groups sought a writ of habeas corpus to free chimpanzees from unlawful detention and the court was asked to determine whether a chimpanzee was a legal person entitled to the rights and protections that would be afforded by such a writ. In *The People of the State of New York ex rel the Non Human Rights Project on behalf of Tommy v Patrick Lavery*⁸⁹ the Appellate Division of the Supreme Court of New York dismissed a claim on behalf of a chimpanzee, Tommy. The court held that lack of precedent for treating non-human animals as persons for the purposes of habeas corpus did not preclude consideration of the claim. The claim however was dismissed on the grounds that:

[U]nlike human beings, chimpanzees cannot bear any legal duties, submit to societal responsibilities or be held legally accountable for their actions. In our view, it is this incapability to bear any responsibilities and societal duties that renders it inappropriate to confer upon chimpanzees the legal rights such as the fundamental right to liberty protected by the writ of habeas corpus –that have been accorded to human beings.⁹⁰

A second case, *In the Matter Of Nonhuman Rights Project, Inc. on behalf of Hercules and Leo v Stanley*⁹¹ concerned two chimpanzees held in a University research unit (Hercules and Leo). Heard by the Supreme Court of New York, the outcome was the same. Habeas corpus was refused but there is much more thorough analysis of legal personhood, express recognition that legal

Argentine court'. (CNN 2016). Available at: <http://edition.cnn.com/2014/12/23/world/americas/feat-orangutan-rights-ruling/>. Accessed July 17, 2017

⁸⁸AS Azcuna. The Writ of Amparo: A Remedy to Enforce Fundamental Rights, *Ateno L.J.* (1993). 37;2: 13

⁸⁹124 A.D. 3d 148 (2014)

⁹⁰*Ibid* at 152.

⁹¹49 Misc.3rd.746 (2015).

personhood 'is not necessarily synonymous with being human' ⁹² and that the parameters of legal personhood might change over time. In the event the chimpanzees in question were ultimately moved to a sanctuary, enabling them to enjoy a more suitable environment.

The claims on behalf of these apes to certain fundamental 'human' rights, although taking a more limited approach than that we advocate here in redrawing the boundaries of personhood, do offer a useful guide to similar claims in relation to AGI and synthetic biological constructs. If we are willing to extend those boundaries and consider whether non-human animals can be legal persons there is no reason to stop there and deny the same consideration to beings which may be brought into existence but who are not related to *Homo sapiens* beings. Biological humanity, or closeness to biological humanity, should not matter despite possible emotional reactions that a robot does not look human or a synthetic construct is Frankenstein's monster; what matters is the faculty of reason. Our novel beings are likely to possess this faculty to reason and may prove more rational than *Homo sapiens*. They may well have or even surpass the same sorts of capacities as do humans for reason, self-awareness, agency, and identity.⁹³ Unlike chimpanzees they will also have the reasoning capacity and ability to bear legal duties and submit to societal responsibilities. These capacities are shared by all three of our conscious novel beings. Posthumans may be more easily recognised as human, and a legal person by virtue of that humanity; but by fulfilling the requirements of personhood, an AGI or synthetic biological construct shows itself deserving of the protections due to a legal person. If it is irrational to grant fundamental rights to Zara (our 'normal' descendant) but not to Ava (our posthuman descendant) is it rational to deny such rights to an AGI or synthetic biological construct when we focus on capacities and ignore how an entity looks and was created? It seems unreasonable simply to assume that a novel being which fulfilled these capacities would be morally different to us in some way which ought to matter to the law.

B. In Defence of Humanity

⁹²*Ibid* at 763.

⁹³*Op cit* 54. At 97.

Commentators who predict the end of *Homo sapiens* as to be destroyed or enslaved by one or more of our novel beings argue we must refuse human rights to these dangerous non-humans. Their opponents ridicule such apoplectic visions finding no reason to conclude that the novel being will share the immoral nature of the many humans who have sought to degrade others they saw as lesser breeds. However even if we should listen to the warnings of bio-conservatives, two considerations militate against any simplistic approach that simply says to deny rights to beings that share humankind's cognitive capacities, and the essential qualities of personhood.

First; the creation of such beings lies in our hands. Should intelligent aliens from a far-off planet with the same capacities as posthumans land on Earth, *Homo sapiens* might indeed be at their mercy. Posthumans, AGI and synthetic biological constructs will not in contrast, come about tomorrow. Further research and development will take time- decades, perhaps. Regulation is needed to build into the process of development both the final status such beings will enjoy and safeguards against the visions of global conflict between different species rather than nations. *Homo sapiens* can at least attempt to call a halt to development, should that be deemed necessary, before any novel being achieves full personhood- before the being is so to speak 'born alive'.⁹⁴

Second, while Article 2 (1) of the ECHR and the common law of homicide protect everyone's right to life, Article 2 (2) and the common law rights to self-defence authorise the use of reasonable force to defend any person from unlawful violence. Should it become apparent that any of the novel beings are banding together to exterminate 'normal' humans as we exterminate rodents, the latter can defend themselves. The prophets of doom may say why wait and the argument would become rather like that of whether it would have been morally defensible to kill Hitler in his cradle

⁹⁴The means by which *Homo sapiens* might undertake or attempt to undertake this are far from clear, and are beyond the scope of this work. A wealth of literature does exist in relation to the role of law and social policy in shaping scientific development, though the present work is primarily concerned with our response should these novel beings come to exist. See, for example, R Williams, D Edge. The social shaping of technology. *Research policy* (1996) 25, 6: 865-899; PM Bakshi, Science, Technology, and Law. *JTRI Journal* (1995) 1,3: 1-13; LR Judge. Biotechnology: Highlights of the science and law shaping the industry. *Santa Clara Computer & High Tech. LJ*, (2003) 20, 79.

had we known what evil he would wreak. In relation to novel beings the dilemma could be greater. Can we, should we prevent the emergence of many beings who just *might* be a danger? The analogy becomes not 'could killing the infant Hitler be justified' but 'could killing all Austrian male infants be justified'.

VII. CONCLUSIONS

Consideration of the nature of intelligent, conscious novel beings such as posthumans, AGI and synthetic biological constructs leads us to conclude that there is a strong case to recognize such beings as entitled to the same fundamental rights to life, freedom from inhumane treatment, and liberty as we are. Applying those rights to beings as different to us as say a digital intelligence will be challenging. Take Article 3 of the ECHR, against torture, inhuman or degrading treatment: we cannot know if or how an AGI might feel pain or what therefore constitutes torture or degrading treatment for them. How would reproductive rights apply to AGI, which can presumably copy themselves ad infinitum? What about positive rights, including the right to vote and rights to health?

We do not claim that cautionary warnings about the risks posed by novel beings should be ignored, nor that an unanswerable case for granting these beings basic rights has been made.

We hope we have made a case that sooner, not later, full consideration should be given to the questions raised here, the usefulness of 'human' as a legal category at all and how the development of such beings should be regulated. It makes no sense to wait for the emergence of novel beings before starting an inquiry similar to the work of the Warnock Committee on embryo research, but potentially far greater in scale; and therein lies a problem. The challenges to our understanding of the nature of novel lifeforms and the claims that such entities may advance to share the same rights as humans are much more fundamental than the ethical and legal dilemmas addressed by Warnock in 1984. Nor can such questions sensibly be addressed within an exclusively national context. International regulation will be needed, as we say above; for, once posthumans, AGI and synthetic biological constructs exist, rational debate about the legal status of these beings, regulation of their creation and development, and indeed whether they should be

allowed to be created will be too late. Nor will national borders be relevant to the questions to be answered.⁹⁵

In 1987 Louis Waller ended his paper 'Any Reasonable Creature in Being' with these words:

[W]ho is and who is not a reasonable creature in being is a grave question of law. It should not be left without an authoritative answer.

We can put it no better.

⁹⁵ This would therefore call for the intervention of UNESCO or some similar large international body, and as pointed out by one anonymous reviewer may be unlikely in the current political climate. It is the authors' view that this question warrants further more specific work in future, as even attempting to outline a scheme or framework would be a mammoth undertaking.